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7590 James R. Murray 69 South Gate Drive Poughkeepsie, NY 12601			EXAMINER DWIVEDI, MAHESH H	
			ART UNIT 2168	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/664,450

Applicant(s)

DOGANATA ET AL.

Examiner

Mahesh H. Dwivedi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/16/2007</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Receipt of Applicant's Amendment, filed on 03/16/2007, is acknowledged. The amendment includes the amending of the specification, the amending of claims 1-11, and 13-16, and the addition of claims 17-20.

Information Disclosure Statement

2. The information disclosure statement filed 03/16/2007 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. The examiner specifically points to references 1-2, 5, and 7 as patent documents which are not published, and as a result should be moved to the non-patent literature section, accompanied with copies of those references.

The information disclosure statement (IDS) submitted on 03/16/2007 has been received, entered into the record, and considered. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. The drawings were received on 03/16/2007. These drawings are acceptable.

Specification

4. The objections raised in the office action mailed on 12/12/2006 have been overcome by applicants amendments received on 03/16/2007.

Claim Objections

5. The objections raised in the office action mailed on 12/12/2006 have been overcome by applicants amendments received on 03/16/2007.

6. Claim 17 is objected to because of the following informalities:

The phrase "**an self-enhancing** search system" should be changed to "**A self-enhancing** search system". Appropriate correction is required.

Claims 18-20 are objected to for incorporating the deficiencies of claim 17.

Claim Rejections - 35 USC § 112

7. The rejections raised in the office action mailed on 12/12/2006 have been overcome by applicants amendments received on 03/16/2007.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 17 recites the limitation "looks through **the** search system log" in page 12. There is insufficient antecedent basis for this limitation in the claim.

Claims 18-20 are rejected for incorporating the deficiencies of claim 17.

Claim 17 recites the limitation "using one or more of **the** glossary terms, synonyms...and translated words" in page 12. There is insufficient antecedent basis for this limitation in the claim.

Claims 18-20 are rejected for incorporating the deficiencies of claim 17.

Claim 19 recites the limitation "that finds documents in **the** identified categories" in page 13. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 is rejected for incorporating the deficiencies of claim 19.

Claim 20 recites the limitation "wherein the index meta-data enhancer" in page 13. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by **Whitman et al.** (U.S. Patent 6,772,150).

12. Regarding claim 1, **Whitman** teaches a search system comprising:

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- A) a search system analysis system that periodically looks through a log for search queries for the search system and identifies for analyzing, unsatisfactory, for analyzing, unsatisfactory search queries that do not bring satisfactory results (Column 7, lines 14-25);
- B) a search query analyzer using one or more of glossary terms, synonyms, known typographical errors and translated words to provide alternative query terms to original search terms in the unsatisfactory search queries (Column 7, lines 14-25, Column 13, lines 36-51, Column 14, lines 13-23, Figure 8);
- C) a relevant document finder based on enhanced queries including the alternative query terms to locate relevant documents not found when the unsatisfactory identified search queries were used (Column 7, lines 14-25, Column 13, lines 65-67-Column 14, lines 1-12, Column 14, lines 13-23, Figure 8); and
- D) a linking meta-data enhancer linking enhanced query terms in documents not found by the unsatisfactory search queries with the original search terms to include new keywords to be automatically searched by the search system when original search terms are used in a future query (Column 10, lines 66-67-Column 11, lines 1-8).

The examiner notes that **Whitman** teaches “a search system analysis system that periodically looks through a log for search queries for the search system and identifies, for analyzing, unsatisfactory, for analyzing, unsatisfactory search queries that do not bring satisfactory results” as “If the query result contains no items (i.e., a NULL query result), the search query is preferably reviewed for any spelling errors and then reapplied to the bibliographic database” (Column 7, lines 14-17). The examiner notes that since the instant claim does not define nor explain how often the system periodically reviews a log, the examiner interprets **Whitman’s** method of relatively instantaneous typographical spelling corrections of a null query as periodically reviewing a log for identifying unsuccessful queries. The examiner further notes that **Whitman** teaches “a search query analyzer using one or more of glossary terms, synonyms, known typographical errors and translated words to provide alternative query terms to original search terms in the unsatisfactory search queries” as “If the query result contains no items (i.e., a NULL query result), the

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search query is preferably reviewed for any spelling errors and then reapplied to the bibliographic database" (Column 7, lines 14-17) and "FIG. 8 illustrates a sample query result page 800 in which a user has performed a title field search for "dog" and has received a set of three related search phrases 810, each of which is incorporated into a respective hyperlink. The page will also typically contain a listing of the query result items 820. If the user clicks on the hyperlink "walkin the dog," the search engine will perform a search using the related search query "walking the dog" and will then return the associated items. The query result page 800 may also have search fields (not shown) for allowing the user to edit the suggested search phases prior to submission" (Column 14, lines 13-23). The examiner notes that **Whitman** teaches "**a relevant document finder based on enhanced queries including the alternative query terms to locate relevant documents not found when the unsatisfactory identified search queries were used**" as "If the query result contains no items (i.e., a NULL query result), the search query is preferably reviewed for any spelling errors and then reapplied to the bibliographic database" (Column 7, lines 14-17), "if the user enters the search query "food" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair "S-food." The three hyperlinks might be "food history," "organic baby food," and "raw food". When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one "hit." (Column 13, lines 65-67-Column 14, lines 1-12), and "in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term "walkin the dog" in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the "top" suggested modified search query to the bibliographic database 133. This process

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could be repeated using additional related search phrases in the list" (Column 14, lines 26-34). The examiner notes that **Whitman** teaches "**a linking meta-data enhancer linking enhanced query terms in documents not found by the unsatisfactory search queries with the original search terms to include new keywords to be automatically searched by the search system when original search terms are used in a future query**" as "If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4).

Regarding claim 2, **Whitman** further teaches a search system comprising:

A) wherein the unsatisfactory search queries and future queries are queries made by customers (Column 4, lines 23-27).

The examiner notes that **Whitman** teaches "**wherein the unsatisfactory search queries and future queries are queries made by customers**" as "For purposes of illustration, the system is described herein in the context of a search engine that is used to assist customers of Amazon.com, Inc. in locating items (e.g., books, CDs, toys, auctions, etc.) from an on-line catalog" (Column 4, lines 23-27).

Regarding claim 3, **Whitman** further teaches a search system comprising:

A) embedding the search query terms of the unsatisfied search queries in the documents located by the enhanced queries (Column 10, lines 60-67-Column 11, lines 1-8).

The examiner notes that **Whitman** teaches "**embedding the search query terms unsatisfied queries in the documents located by the enhanced queries**" as "Next, in step 550, the process looks up the key term/prefix pair in the search phrase table to determine whether there already is an entry with the search phrase. If the search phrase already exists under the key term/prefix pair, the process increments the search phrase's score (step 570). If, however, the search phrase is not in the table

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under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4). The examiner further notes that each of the query terms in **Whitman's** method (see prefix) are labeled under a general key term (see key term/prefix pair), and as a result are added to all documents located by the successful queries; either through an incremental increase or through the physical addition, if it was not found in the key term/prefix pair.

Regarding claim 4, **Whitman** further teaches a search system comprising:

A) associating enhanced queries with the unsatisfactory search queries in the search system log for use with further queries (Column 10, lines 60-67-Column 11, lines 1-8).

The examiner notes that **Whitman** teaches "associating enhanced queries with the unsatisfactory search queries in the search system log for use with further queries" as "Next, in step 550, the process looks up the key term/prefix pair in the search phrase table to determine whether there already is an entry with the search phrase. If the search phrase already exists under the key term/prefix pair, the process increments the search phrase's score (step 570). If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4).

Regarding claim 5, **Whitman** further teaches a search system comprising:

A) including ranking the results of searches using both the unsatisfactory and the enhanced queries (Column 13, lines 36-51, Column 13, lines 65-67-Column 14, lines 1-12, Column 14, lines 26-34).

The examiner notes that **Whitman** teaches "including ranking the results of searches using both the unsatisfactory and the enhanced queries" as "For single-term queries, the selection process 139 thus retrieves the top X related search phrases

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from the table. For multiple-term queries, the selection process 139 obtains the related search phrase lists 142 for each of the key terms, and then takes the intersection of (or otherwise combines) these lists. The selection process 139 then displays the X intersecting terms with the X highest summed scores. If there are less than X intersecting, related search phrases, the selection process 139 may show only the intersecting related search phrases or it may use other criteria to generate the remaining related search phrases. For example, the selection process 139 could take the top Y search phrases with the highest summed scores from the non-intersecting related search phrases, although such related search phrases may not fully relate to the user's search query and may produce a NULL query result" (Column 13, lines 36-51), "if the user enters the search query "food" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair "S-food." The three hyperlinks might be "food history," "organic baby food," and "raw food". When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one "hit."" (Column 13, lines 65-67-Column 14, lines 1-12), and "in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term "walkin the dog" in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the "top" suggested modified search query to the bibliographic database 133. This process could be repeated using additional related search phrases in the list" (Column 14, lines 26-34).

Regarding claim 6, **Whitman** further teaches a search system comprising:

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- A) wherein the search query analyzer comprises a module including: a sub-module that identifies domain specific terms in a given query, using domain specific glossary (Column 13, lines 65-67-Column 14, lines 1-12, Figure 8);
- B) a sub-module that finds synonyms and related terms for the identified terms, using domain specific thesaurus (Column 13, lines 65-67-Column 14, lines 1-12, Figure 8);
- C) a sub-module that finds other statistically close terms (Column 10, lines 60-67-Column 11, lines 1-8); and
- D) a sub-module that identifies relevant domain specific categories for the identified terms, using domain specific ontology (Column 5, lines 13-19).

The examiner notes that **Whitman** teaches "**wherein the search query analyzer comprises a module including: a sub-module that identifies domain specific terms in a given query, using domain specific glossary**" as "if the user enters the search query "food" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair "S-food." The three hyperlinks might be "food history," "organic baby food," and "raw food". When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one "hit."" (Column 13, lines 65-67-Column 14, lines 1-12). The examiner further notes that **Whitman** teaches "**a sub-module that finds other statistically close terms**" as "Next, in step 550, the process looks up the key term/prefix pair in the search phrase table to determine whether there already is an entry with the search phrase. If the search phrase already exists under the key term/prefix pair, the process increments the search phrase's score (step 570). If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search

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phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4). The examiner further notes that **Whitman** teaches "**a sub-module that identifies relevant domain specific categories for the identified terms, using domain specific ontology**" as "As further depicted by FIG. 1, each related search phrase 142 and key term 140 preferably include a single-character field prefix which indicates the search field to which the term corresponds. These prefixes may, for example, be as follows: A=author, T=title, S=subject, R=artist, L=label, B=general book; G=general item." (Column 5, lines 13-19).

Regarding claim 7, **Whitman** further teaches a search system comprising:

- A) wherein the document finder comprises a module including the following sub-modules: a sub-module that finds documents in the identified categories, using an original textual index (Column 13, lines 65-67-Column 14, lines 1-12, Figure 8); and
- B) a sub-module that filters the found documents to find additional relevant documents, based on the identified domain specific terms, synonyms, related terms, and statistically close terms (Column 14, lines 26-34, Figure 8).

The examiner notes that **Whitman** teaches "**wherein the document finder comprises a module including the following sub-modules: a sub-module that finds documents in the identified categories, using an original textual index**" as if the user enters the search query "food" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair "S-food." The three hyperlinks might be "food history," "organic baby food," and "raw food". When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one "hit."" (Column 13, lines 65-67-Column 14, lines 1-12). The examiner further notes that **Whitman** teaches "**a sub-module that**

filters the found documents to find additional relevant documents, based on the identified domain specific terms, synonyms, related terms, and statistically close terms” as “in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term “walkin the dog” in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the “top” suggested modified search query to the bibliographic database 133. This process could be repeated using additional related search phrases in the list” (Column 14, lines 26-34).

Regarding claim 8, **Whitman** further teaches a search system comprising:
A) wherein the linking meta-data enhancer comprises a module including the following sub-modules: a sub-module that creates associations (links) between each found document and the given query (Figure 8); and
B) a sub-module that adds new doc-query links to the meta-data of the corresponding textual index entries (Column 7, lines 29-32, Column 14, lines 26-34, Figure 8).

The examiner notes that Figure 8 of **Whitman** clearly shows links 810 and 820 for differing queries. The examiner notes that **Whitman** teaches “**a sub-module that adds new doc-query links to the meta-data of the corresponding textual index entries**” as “The disclosed search engine also preferably uses historical query submissions and item selections to rank query results for presentation to the user” (Column 7, lines 29-32) and “in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term “walkin the dog” in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the “top” suggested modified search query to the bibliographic database 133. This process could be repeated using additional related search phrases in the list” (Column 14, lines 26-34).

Regarding claim 9, **Whitman** teaches a computer program comprising:

- A) a search system analog system software module that periodically looks through a log for the search system and identifies for analyzing unsuccessful search queries that turn up less than a specified number of references (Column 7, lines 14-25);
- B) a search query analyzer software module using one or more of glossary terms, synonyms, known typographical errors and translated words to provide alternative query terms (Column 7, lines 14-25, Column 13, lines 36-51, Column 14, lines 13-23, Figure 8);
- C) a relevant document finder software module based on enhanced queries including the alternative query terms to locate relevant documents not found using said unsuccessful search queries (Column 7, lines 14-25, Column 13, lines 65-67-Column 14, lines 1-12, Column 14, lines 13-23, Figure 8); and
- D) a linking software module linking enhanced query terms with the original search terms to include new keywords to be searched automatically by the search system if the original search terms are used in a future query (Column 10, lines 66-67-Column 11, lines 1-8).

The examiner notes that **Whitman** teaches “**a search system analog system software module that periodically looks through a log for the search system and identifies for analyzing unsuccessful search queries that turn up less than a specified number of references**” as “If the query result contains no items (i.e., a NULL query result), the search query is preferably reviewed for any spelling errors and then reapplied to the bibliographic database” (Column 7, lines 14-17). The examiner notes that since the instant claim does not define nor explain how often the system periodically reviews a log, the examiner interprets **Whitman’s** method of relatively instantaneous typographical spelling corrections of a null query as periodically reviewing a log for identifying unsuccessful queries. The examiner further notes that identifying null queries is identifying queries with less than a predetermined amount (1 result). The examiner further notes that **Whitman** teaches “**a search query analyzer software module using one or more of glossary terms, synonyms, known typographical errors and translated words to provide alternative query terms**” as “If the query result contains no items (i.e., a NULL query result), the search query is preferably

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reviewed for any spelling errors and then reapplied to the bibliographic database" (Column 7, lines 14-17) and "FIG. 8 illustrates a sample query result page 800 in which a user has performed a title field search for "dog" and has received a set of three related search phrases 810, each of which is incorporated into a respective hyperlink. The page will also typically contain a listing of the query result items 820. If the user clicks on the hyperlink "walkin the dog," the search engine will perform a search using the related search query "walking the dog" and will then return the associated items. The query result page 800 may also have search fields (not shown) for allowing the user to edit the suggested search phases prior to submission" (Column 14, lines 13-23). The examiner notes that **Whitman** teaches "**a relevant document finder software module based on enhanced queries including the alternative query terms to locate relevant documents not found using said unsuccessful search queries**" as "If the query result contains no items (i.e., a NULL query result), the search query is preferably reviewed for any spelling errors and then reapplied to the bibliographic database" (Column 7, lines 14-17), "if the user enters the search query "food" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair "S-food." The three hyperlinks might be "food history," "organic baby food," and "raw food". When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one "hit." (Column 13, lines 65-67-Column 14, lines 1-12), and "in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term "walkin the dog" in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the "top" suggested modified search query to the bibliographic database 133. This process could

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be repeated using additional related search phrases in the list" (Column 14, lines 26-34). The examiner notes that **Whitman** teaches "**a linking software module linking enhanced query terms with the original search terms to include new keywords to be searched automatically by the search system if the original search terms are used in a future query**" as "If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4).

Regarding claim 10, **Whitman** further teaches a computer program comprising:
A) wherein the unsatisfied search queries are queries made by customers (Column 4, lines 23-27).

The examiner notes that **Whitman** teaches "**wherein the unsatisfied search queries are queries made by customers**" as "For purposes of illustration, the system is described herein in the context of a search engine that is used to assist customers of Amazon.com, Inc. in locating items (e.g., books, CDs, toys, auctions, etc.) from an on-line catalog" (Column 4, lines 23-27).

Regarding claim 11, **Whitman** further teaches a computer program comprising:
A) software for embedding the search query terms of the unsatisfied search queries in the documents located by the enhanced queries (Column 10, lines 60-67-Column 11, lines 1-8).

The examiner notes that **Whitman** teaches "**software for embedding the search query terms of the unsatisfied search queries in the documents located by the enhanced queries**" as "Next, in step 550, the process looks up the key term/prefix pair in the search phrase table to determine whether there already is an entry with the search phrase. If the search phrase already exists under the key term/prefix pair, the process increments the search phrase's score (step 570). If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the

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search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4).

Regarding claim 12, **Whitman** further teaches a computer program comprising:
A) software for providing associated enhanced queries with the unsatisfactory queries in the search system log for use in connection with further customer queries (Column 10, lines 60-67-Column 11, lines 1-8).

The examiner notes that **Whitman** teaches "**software for providing associated enhanced queries with the unsatisfactory queries in the search system log for use in connection with further customer queries**" as "Next, in step 550, the process looks up the key term/prefix pair in the search phrase table to determine whether there already is an entry with the search phrase. If the search phrase already exists under the key term/prefix pair, the process increments the search phrase's score (step 570). If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4).

Regarding claim 13, **Whitman** further teaches a computer program comprising:
A) including software for ranking results of searches in order of their pertinency using the enhances query terms as a ranking basis (Column 13, lines 36-51, Column 13, lines 65-67-Column 14, lines 1-12, Column 14, lines 26-34).

The examiner notes that **Whitman** teaches "**including software for ranking results of searches in order of their pertinency using the enhances query terms as a ranking basis**" as "For single-term queries, the selection process 139 thus retrieves the top X related search phrases from the table. For multiple-term queries, the selection process 139 obtains the related search phrase lists 142 for each of the key terms, and then takes the intersection of (or otherwise combines) these lists. The

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selection process 139 then displays the X intersecting terms with the X highest summed scores. If there are less than X intersecting, related search phrases, the selection process 139 may show only the intersecting related search phrases or it may use other criteria to generate the remaining related search phrases. For example, the selection process 139 could take the top Y search phrases with the highest summed scores from the non-intersecting related search phrases, although such related search phrases may not fully relate to the user's search query and may produce a NULL query result" (Column 13, lines 36-51), "if the user enters the search query "food" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair "S-food." The three hyperlinks might be "food history," "organic baby food," and "raw food". When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one "hit."" (Column 13, lines 65-67-Column 14, lines 1-12), and "in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term "walkin the dog" in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the "top" suggested modified search query to the bibliographic database 133. This process could be repeated using additional related search phrases in the list" (Column 14, lines 26-34).

Regarding claim 14, **Whitman** further teaches a computer program comprising:
A) wherein the search query analyzer software module comprises: a software sub-module that identifies domain specific terms in a given query, using domain specific glossary (Column 13, lines 65-67-Column 14, lines 1-12, Figure 8);

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B) a software sub-module that finds synonyms and related terms for the identified terms, using domain specific thesaurus (Column 13, lines 65-67-Column 14, lines 1-12, Figure 8);

C) a software sub-module that finds other statistically close terms (Column 10, lines 60-67-Column 11, lines 1-8); and

D) a software sub-module that identifies relevant domain specific categories for the identified terms, using domain specific ontology (Column 5, lines 13-19).

The examiner notes that **Whitman** teaches “**wherein the search query analyzer software module comprises: a software sub-module that identifies domain specific terms in a given query, using domain specific glossary**” as “if the user enters the search query “food” in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair “S-food.” The three hyperlinks might be “food history,” “organic baby food,” and “raw food”. When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one “hit.”” (Column 13, lines 65-67-Column 14, lines 1-12). The examiner further notes that **Whitman** teaches “**a software sub-module that finds other statistically close terms**” as “Next, in step 550, the process looks up the key term/prefix pair in the search phrase table to determine whether there already is an entry with the search phrase. If the search phrase already exists under the key term/prefix pair, the process increments the search phrase's score (step 570). If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)” (Column 10, lines 66-67-Column 11, lines 1-4). The examiner further notes that **Whitman** teaches “**a software sub-module that**

identifies relevant domain specific categories for the identified terms, using domain specific ontology" as "As further depicted by FIG. 1, each related search phrase 142 and key term 140 preferably include a single-character field prefix which indicates the search field to which the term corresponds. These prefixes may, for example, be as follows: A=author, T=title, S=subject, R=artist, L=label, B=general book; G=general item." (Column 5, lines 13-19).

Regarding claim 15, **Whitman** further teaches a computer program comprising:
A) including a document finder module that comprises the following software sub-modules: a software sub-module that finds documents in the identified categories, using the original textual index (Column 13, lines 65-67-Column 14, lines 1-12, Figure 8); and
B) a software sub-module that filters the found documents to find additional relevant documents, based on the identified domain specific terms, synonyms, related terms, and statistically close terms (Column 14, lines 26-34, Figure 8).

The examiner notes that **Whitman** teaches "including a document finder module that comprises the following software sub-modules: a software sub-module that finds documents in the identified categories, using the original textual index" as if the user enters the search query "food" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair "S-food." The three hyperlinks might be "food history," "organic baby food," and "raw food". When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one "hit." (Column 13, lines 65-67-Column 14, lines 1-12). The examiner further notes that **Whitman** teaches "**a software sub-module that filters the found documents to find additional relevant documents, based on the identified domain specific terms, synonyms, related**

terms, and statistically close terms" as "in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term "walkin the dog" in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the "top" suggested modified search query to the bibliographic database 133. This process could be repeated using additional related search phrases in the list" (Column 14, lines 26-34).

Regarding claim 16, **Whitman** further teaches a computer program comprising:
A) wherein a meta data enhancer module comprises the following sub-modules: a software sub-module that creates associations (links) between each found document and the given query (Figure 8); and
B) a software sub-module that adds new doc-query links to the meta-data of the corresponding textual index entries (Column 7, lines 29-32, Column 14, lines 26-34, Figure 8).

The examiner notes that Figure 8 of **Whitman** clearly shows links 810 and 820 for differing queries. The examiner notes that **Whitman** teaches "**a software sub-module that adds new doc-query links to the meta-data of the corresponding textual index entries**" as "The disclosed search engine also preferably uses historical query submissions and item selections to rank query results for presentation to the user" (Column 7, lines 29-32) and "in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term "walkin the dog" in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the "top" suggested modified search query to the bibliographic database 133. This process could be repeated using additional related search phrases in the list" (Column 14, lines 26-34).

Regarding claim 17, **Whitman** teaches a search system comprising:

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- A) a search system analysis system that periodically looks through the search system log and identifies for analysis unsatisfactory search queries that do not cite more than a specified number of references (Column 7, lines 14-25);
- B) a search query analyzer using one or more of the glossary terms, synonyms, known typographical errors and translated words to provide alternative query terms to original search terms in the unsatisfactory search queries (Column 7, lines 14-25, Column 13, lines 36-51, Column 14, lines 13-23, Figure 8);
- C) a relevant document finder based on enhanced queries including the alternative query terms to locate relevant documents not found by the original search (Column 7, lines 14-25, Column 13, lines 65-67-Column 14, lines 1-12, Column 14, lines 13-23, Figure 8); and
- D) a linking meta-data enhancer creating separate enhances links to one or more of said relevant documents linking to said relevant documents the original terms of the unsatisfactory search queries so that future search queries using the original terms will result in finding said relevant documents not found by the unsatisfactory search queries (Column 10, lines 66-67-Column 11, lines 1-8).

The examiner notes that **Whitman** teaches “a search system analysis system that periodically looks through the search system log and identifies for analysis unsatisfactory search queries that do not cite more than a specified number of references” as “If the query result contains no items (i.e., a NULL query result), the search query is preferably reviewed for any spelling errors and then reapplied to the bibliographic database” (Column 7, lines 14-17). The examiner notes that since the instant claim does not define nor explain how often the system periodically reviews a log, the examiner interprets **Whitman’s** method of relatively instantaneous typographical spelling corrections of a null query as periodically reviewing a log for identifying unsuccessful queries. The examiner further notes that **Whitman** teaches “a search query analyzer using one or more of the glossary terms, synonyms, known typographical errors and translated words to provide alternative query terms to original search terms in the unsatisfactory search queries” as “If the query result contains no items (i.e., a NULL query result), the search query is preferably

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reviewed for any spelling errors and then reapplied to the bibliographic database" (Column 7, lines 14-17) and "FIG. 8 illustrates a sample query result page 800 in which a user has performed a title field search for "dog" and has received a set of three related search phrases 810, each of which is incorporated into a respective hyperlink. The page will also typically contain a listing of the query result items 820. If the user clicks on the hyperlink "walkin the dog," the search engine will perform a search using the related search query "walking the dog" and will then return the associated items. The query result page 800 may also have search fields (not shown) for allowing the user to edit the suggested search phases prior to submission" (Column 14, lines 13-23). The examiner notes that **Whitman** teaches **"a relevant document finder based on enhanced queries including the alternative query terms to locate relevant documents not found by the original search"** as "If the query result contains no items (i.e., a NULL query result), the search query is preferably reviewed for any spelling errors and then reapplied to the bibliographic database" (Column 7, lines 14-17), "if the user enters the search query "food" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair "S-food." The three hyperlinks might be "food history," "organic baby food," and "raw food". When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one "hit."" (Column 13, lines 65-67-Column 14, lines 1-12), and "in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term "walkin the dog" in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the "top" suggested modified search query to the bibliographic database 133. This process could be repeated using

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additional related search phrases in the list" (Column 14, lines 26-34). The examiner notes that **Whitman** teaches "**a linking meta-data enhancer creating separate enhances links to one or more of said relevant documents linking to said relevant documents the original terms of the unsatisfactory search queries so that future search queries using the original terms will result in finding said relevant documents not found by the unsatisfactory search queries**" as "If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4).

Regarding claim 18, **Whitman** further teaches a search system comprising:

A) wherein said meta-data enhancer links the enhanced query terms to the original query terms to locate said relevant documents (Column 10, lines 60-67-Column 11, lines 1-8).

The examiner notes that **Whitman** teaches "**wherein said meta-data enhancer links the enhanced query terms to the original query terms to locate said relevant documents**" as "Next, in step 550, the process looks up the key term/prefix pair in the search phrase table to determine whether there already is an entry with the search phrase. If the search phrase already exists under the key term/prefix pair, the process increments the search phrase's score (step 570). If, however, the search phrase is not in the table under the key term/prefix pair, then the process adds the search phrase with a default score (e.g., 1) (step 580). The process then repeats for each additional key term/prefix pair until all key terms in the search phrase have been traversed (steps 530, 590)" (Column 10, lines 66-67-Column 11, lines 1-4).

Regarding claim 19, **Whitman** further teaches a search system comprising:

A) wherein the relevant document finder comprises the following sub-modules: a sub-module that finds documents in the identified categories, using the original terms (Column 13, lines 65-67-Column 14, lines 1-12, Figure 8); and

B) a sub-module that filters the found documents to find additional relevant documents, based on enhanced terms including one or more of domain specific terms, synonyms, related terms, and statically close terms (Column 14, lines 26-34, Figure 8).

The examiner notes that **Whitman** teaches “**wherein the relevant document finder comprises the following sub-modules: a sub-module that finds documents in the identified categories, using the original terms**” as if the user enters the search query “food” in the subject field, three additional hyperlinks may be displayed on the query result page, each of which generates a modified search when clicked on by the user. Each of these links is formed by displaying the top related search phrases from the related search phrase list of the key term/prefix pair “S-food.” The three hyperlinks might be “food history,” “organic baby food,” and “raw food”. When the user clicks on one of these links, the corresponding modified search query is submitted to the search engine. The method thus enables the user to select and submit the modified search query with a single action (e.g., one click of a mouse). As an inherent benefit of the above-described method of generating the related search phrases, each such link produces at least one “hit.” (Column 13, lines 65-67-Column 14, lines 1-12). The examiner further notes that **Whitman** teaches “**a sub-module that filters the found documents to find additional relevant documents, based on enhanced terms including one or more of domain specific terms, synonyms, related terms, and statically close terms**” as “in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term “walkin the dog” in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the “top” suggested modified search query to the bibliographic database 133. This process could be repeated using additional related search phrases in the list” (Column 14, lines 26-34).

Regarding claim 20, **Whitman** further teaches a search system comprising:

- A) wherein the index meta-data enhancer module comprises the following sub-modules: a sub-module that creates associations (links) between each found document and the original query (Figure 8); and
- B) a sub-module that adds new links to the meta-data of the corresponding textual index entries (Column 7, lines 29-32, Column 14, lines 26-34, Figure 8).

The examiner notes that Figure 8 of **Whitman** clearly shows links 810 and 820 for differing queries. The examiner notes that **Whitman** teaches “**a sub-module that adds new links to the meta-data of the corresponding textual index entries**” as “The disclosed search engine also preferably uses historical query submissions and item selections to rank query results for presentation to the user” (Column 7, lines 29-32) and “in one embodiment, the query server 132 automatically selects the related search phrase at the top of related search phrase list (such as the term “walkin the dog” in the FIG. 8 example), and searches the query result to identify a subset of query result items that include this related search phrase. The query server 132 thereby effectively applies the “top” suggested modified search query to the bibliographic database 133. This process could be repeated using additional related search phrases in the list” (Column 14, lines 26-34).

Response to Arguments

13. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. PGPUB 2005/0065773 issued to **Huang et al.** on 24 March 2005. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. PGPUB 2004/0254920 issued to **Brill et al.** on 16 December 2004. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. Patent 7,051,023 issued to **Kapur et al.** on 23 May 2006. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. Patent 7,136,845 issued to **Chandrasekar et al.** on 14 November 2006. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. Patent 6,169,986 issued to **Bowman et al.** on 02 January 2001. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. PGPUB 20040249808 issued to **Azzam et al.** on 09 December 2004. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. PGPUB 2005/0055341 issued to **Haahr et al.** on 10 March 2005. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. Patent 6,941,294 issued to **Flank** on 06 September 2005. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. Patent 7,197,508 issued to **Brown** on 27 March 2007. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. Patent 7,127,456 issued to **Brown** on 24 October 2006. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. Patent 6,338,055 issued to **Haggmann** on 08 January 2002. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

U.S. PGPUB 2002/0210017 issued to **Lawton et al.** on 18 July 2002. The subject matter disclosed therein is pertinent to that of claims 1-20 (e.g., methods to use query logs to improve user query output).

Article entitled "An Advanced Enterprise Information Search and Delivery System: Fulfilling IBM's one-Web vision" by **Doganata et al.**, dated 14 October 2002. The subject matter disclosed therein is pertinent to that of claims 1-26 (e.g., methods to use query logs to improve user query output).

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahesh Dwivedi whose telephone number is (571) 272-2731. The examiner can normally be reached on Monday to Friday 8:20 am – 4:40 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached (571) 272-3642. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Mahesh Dwivedi

Patent Examiner

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June 06, 2007


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